

Development of Web-based Interactive Media using Genially in Food Technology Course of Culinary Arts Education Study Program

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Abstract

This research aims to: 1) Develop an interactive media using the Genially website in Food Technology course; 2) To gauge the students response towards the Genially media. It was conducted in Culinary Arts Education Study Program of State University of Medan. The research was carried out in April-June 2024. This was a research & development study using the ADDIE development model, consisting of Analysis, Design, Development, Implementation, Evaluation. The media was validated by 3 subject matter experts and 3 media experts, as well as 30 students as the users. The data collection technique was questionnaire. The data was analysed descriptively. The results show that the Genially media can be distributed and implemented in Food Technology course. The validation results from subject matter experts and media experts are in very good category with an average score of 94 percent. Students response towards the media is in very high category with a score of 4.94 out of 5. It can be concluded that Genially-based media can be used in Food Technology course to improve students' learning outcome in Culinary Arts Study Program.

Keywords: *Development, Genially Media, Food Technology, Education, Culinary Arts.*

Introduction

Information technology development has drastically changed the paradigm in searching for and obtaining information. People are no longer limited to newspaper, television, and radio, and can obtain information from other sources such as the internet (Abdullah, 2021). One of the fields reaping benefits from this technological development is education (Yolanda, & Indriani, 2023). There is an obligation for the field of education to utilize the advances to increase the quality of education, especially to adapt the use of technology in the learning process. (Ratno & Afandi, 2022). Each component in the field of education is required to master the newest technological development (Ratno & Afandi, 2022). Using technology in classroom requires the teachers to be skillful. (Rahayu et al., 2023). As such, lecturer as the student-facing educator is required to optimize the use of technology in teaching-learning process. Kurikulum Merdeka (Independent Curriculum) uses more technology-based learning media compared to the previous curriculum in Indonesia (Maulidiyah et al., 2023). There are some problems in the implementation, namely lack of variety in learning media, lecturers' lack of skill in developing media, and lack of skill in using technology (Marjan et al., 2022). Technology enables students and lecturers to access learning material anywhere and anytime. Nowadays, a lot of learning media are freely available to be downloaded. However, the content may not be suitable for a particular course. Therefore, lecturers play a pivotal role in developing learning media to achieve the desired learning outcome. There is a demand for lecturers to deliver the material through digital media. Of course, this is not done simply by transferring the material from textbooks to applications. The media has to be interactive and engaging.

Based on the above, there is a need to increase the skills of lecturers in creating interactive learning media. One of the learning media that can be used is a web platform named Genially. Genially is an application which can be used to create interactive and engaging learning media at a low cost (Firduansyah, 2023).

Genially is a web-based platform that helps users to create audio-visual and interactive content fast and easily (Firduansyah, 2023). Genially is also rated as one of the top 100 learning media application

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(Firduansyah, 2023). Not only does it increase learning excitement, the media can also be used to measure students motivation.

Food Technology course is one of the courses in Culinary Arts Education Study Program which discusses the food processing and preservation methods based on the characteristics by retaining and increasing the quality, rate, and nutritional value of the food. Food technology is closely related to engineering and technology. To deliver material, lecturer should use engaging and interesting media. Lecturers have been using simple PowerPoint presentation to deliver the material in Food Technology course. In this digital era, technology is an integral part of education. Lecturers need to follow and adapt to technological development in order to provide relevant and engaging education. Genially, a platform to create interactive visual content, is a useful tool to create engaging and interactive learning experience. Genially can be used to display the content of presentation and various other things (Maulidiyah et al., 2023).

Genially is equipped with multiple interesting features like templates with various themes. (Putri et al., 2023). The media can also be used to create game quiz relevant to the topic being taught, to import another media from other sites such as Youtube, Spotify, and other websites, as well as to create learning media from offline/local sources. Media contains various features like presentation, learning video, digital poster, educational game, and other interactive learning materials (Putra & Afrina, 2023). Furthermore, media using Genially are accessible online, making it easy to access just by having the link to the media. There is no need to transfer materials using thumbdrives manually. This enables students to easily access the material using their personal gadgets and laptops anywhere and anytime (Putri et al., 2023).

Several researchers have developed similar media using Genially. Enstein (2022) developed an educational game learning media in indices and roots using Genially. The results show that experts determine that it is very good by assessing it through Black Box Testing. The game runs well and is feasible to use by students and general users. Other study by

Putra & Afrina (2023) shows that Genially-based interactive media is feasible to use based on the validation of media and subject matter experts. The response of students and teachers also show that the interactive learning media is feasible to use. Rinjani (2024) shows that

Genially is considered as an effective and engaging learning media by 5th semester students in PBSI. The positive feedback can form the basis of further development of technology-based education in the future.

The novelty in this research is how the Genially application can be used as a tool to develop learning media. As such, this study is conducted with the following goals: 1) To develop an interactive media using the Genially website in Food Technology course; 2) To gauge the students response towards the Genially media in Food Technology course.

Methods

The study was conducted in Culinary Arts Education Study Program of State University of Medan. The research was carried out in April-June 2024. The output was a Genially media in Food Technology course which would be used by students of Culinary Arts Education and be validated by subject matter experts, media experts, and students' feedback. This was a research and development (R&D) which is a process to develop a new product or to improve an existing product with a certain standard of quality. The ADDIE model was used to develop the media. It consists of 5 development stages namely Analysis, Design, Development, Implementation, Evaluation.

Questionnaire was used to collect data. The questionnaires consist of 1) learning material quality questionnaire to assess the material validity, presentation, and language; 2) media quality questionnaire to assess graphics and presentation; 3) student feedback questionnaire to assess information and guidance, material, design and features, and also pedagogical effect aspects. The validators consist of 3 subject matter experts and 3 media experts. The developed product was administered to students to determine students' feedback and assess the acceptance rate of the developed media.

Analysis was performed after data collection. Data analyzed in this study consists of data of needs analysis of lecturer and students, feasibility score of material and media, and students' feedback data. The following technique is used to analyze the data: Percentage data of needs analysis is calculated according to the following formula:

$$P = \frac{\sum x}{\sum y} \times 100 \%$$

where:

P = percentage

$\sum x$ = Total answer

$\sum y$ = Maximum score

The obtained quantitative data was interpreted as quantitative value with the criteria presented in Table 1.

Table 1. Criteria for Students Needs Questionnaire

No	Score	Classification
1.	Score \geq 50%	Need
2.	Score \leq 50%	Don't Need

Feasibility test of the Genially media according to subject matter validator and media validator is used to determine the feasibility of the media. Item scoring criteria using the Likert scale can be seen in Table 2.

Table 2. Questionnaire Item Scoring Criteria Using Likert Scale

No	Criteria	Score
1.	Very Good	5
2.	Good	4
3.	Lacking	3
4.	Bad	2
5.	Very Bad	1

The quantitative data from validation is calculated to obtain the average score as follows:

$$P = \frac{f}{N} \times 100 \%$$

where:

P : Percentage score

f : Score from validator

N : Maximum score

After the calculation, it is converted to qualitative score. The feasibility of Genially media is interpreted by determining interval range (Ji) as follows:

$$J_i = (t-r)/J_k$$

where:

t = highest ideal score in the scale

r = lowest ideal score in the scale

J_k = Number of class interval

Based on the above the classification of calculation result using 100% scale is as follows:

- Highest ideal percentage = 100%
- Lowest ideal percentage = 20%
- Interval range = $(100\% - 20\%)5\% = 16\%$

Validation criteria used in the media development can be seen in Table 3.

Table 3. Interval of Feasibility Criteria

No	Range of Score (%)	Criteria
1.	84 – 100	Very Good
2.	68 – 83	Good
3.	52 – 67	Decent
4.	36 – 51	Lacking
5.	20 – 35	Very Lacking

Students feedback on the developed Genially media was analyzed descriptively. Table 4 shows the category of students' feedback scores.

Table 4. Students' feedback score category

No	Score	where:
1.	1	Strongly Disagree
2.	2	Disagree
3.	3	Neither
4.	4	Agree
5.	5	Strongly Agree

The media feasibility according to students feedback is analyzed using statistical descriptive method. The feedback score in 5-point scale is tabulated and the average is calculated. The students response is classed into four group, with the ideal mean (2.50) regarded as the boundary score. Table 5 shows the interpretation of students' feedback.

Table 5. Interpretation of Students' Feedback on Genially Media

No	Mean Score Interval	Interpretation
1.	1.00 – 2.49	Low
2.	2.50 – 3.32	Decent
3.	3.33 – 4.16	High
4.	4.17 – 5.00	Very High

To calculate the average score of each aspect:

$$x = \frac{\sum x}{n}$$

where:

x = average of the aspect

$\sum x$ = total score in 1 aspect

n = number of items in 1 aspect

The overall response of the media is assessed similarly by including all scores in the four segments using:

$$X_t = \frac{\sum xi}{n}$$

where:

X_t = Overall mean response

$\sum xi$ = overall score in all aspects

n = number of items in all aspects

RESULTS

The output product which is a Genially web-based interactive media in Food Technology Course in Culinary Arts Study Program in State University of Medan can be seen in Figure 1.



Fig. 1. Home Screen of The Media

Lecturers Needs Analysis

Table 6 shows the lecturers needs analysis results, which shows that 100% of the lecturers stating that there is a need to develop the Genially media in Food Technology course in order to help lecturers to deliver learning material to achieve the desired learning outcomes.

Table 6. Distribution of Response of Lecturers Needs Analysis

No	Score	n	%	Classification
1.	≥ 50%	4	100	Need
2.	Total	4	100	Need

Students Needs Analysis

Table 7 shows the students needs analysis results, which shows that 88 % of the students stating that there is a need to use the Genially media in Food Technology course as a learning media that enables the students to understand the material easier based on the desired learning outcomes.

Table 7. Distribution of Response of Students Needs Analysis

No	Score	n	%	Classification
1.	≥ 50%	15	88	Need
2.	Total	15	88	Need

The output product is a web-based interactive media using Genially in Food Technology course. The product development was carried out based on the designed storyboard. Meticulous care was taken in choosing the background, as well as taking the video and pictures. The media includes text, audio, video, and pictures. It is hoped that it would help students to understand the Food Technology material easier.

The developed product was then validated and revised based on the validators' responses to improve the quality of the product. Subject matter experts and media experts, as well as students responses, became the basis of revision.

Material Validation

Material validation was carried out to assess the completeness, correctness, and systems. In the first stage of the research, 3 aspects of material were assessed to determine the quality. They are the feasibility of content material, presentation, and language. The feasibility of content consists of 6 indicators, presentation consists of 4 indicators, and the language consists of 3 indicator, as shown in Table 8.

Table 8. Results from Material Validation, Stage 1

No	Aspect	Average score (%)	Category
1.	Feasibility of content material	80.00	Good
2.	Presentation	85.00	Very Good
3.	Language	80.00	Good
	Total	81.53	Good

Table 8 show the results of first validity test of content material by the validators, who gave the feasibility of content material 80.00 percent in the decent category, presentation of 85.00 percent in good category, and language of 80.00 percent in good category. Based on the results, content material validators gave an overall score of 81.53 percent, determining the media to be in good category. The results for the second stage of validity test of content material can be seen in Table 9.

Table 9. Results from Material Validation, Stage II

No	Aspect	Average score (%)	Category
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1.	Feasibility of content material	100	Very Good
2.	Presentation	95.00	Very Good
3.	Language	100	Very Good
	Total	98.46	Very Good

Based on the results shown in Table 9, the content material validators gave the feasibility of content material a score of 100 percent in the very good category, presentation of 95.00 percent in very good category, and language of 100 percent in very good category. Based on the results, content material validators gave an overall score of 98.46 percent, determining the media to be in very good category.

Therefore, the overall score according to content material validators in stage I is 81.53 percent in the good category and increases to 98.46 percent in the very good category in stage II. The feasibility of the media according to the content material validators in stage I and stage II can be seen in Fig. 2.

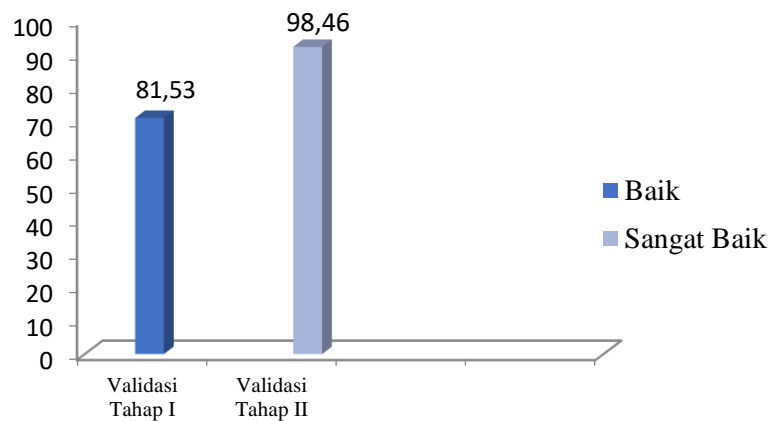


Fig. 2. Bar Chart of Content Material Validators Score

Media Validation

Media validation was carried out to assess the quality, arrangement, and the suitability of the media. In the first stage of the research, 2 aspects of were assessed to determine the quality of the media. They are the media presentation and graphics. Media presentation aspect consists of 7 indicator whereas graphics aspect consists of 10 indicators. Based on the results, media validators gave an overall score of 82.35 percent, determining the media to be in good category.

Table 10. Results from media validation, Stage I

No	Aspect	Average score (%)	Category
1	Media presentation	85.71	Very Good
2	Graphics	80.00	Good
	Total	82.35	Good

Table 10 show the results of first validity test of media by the media validators, who gave the media presentation 85.71 percent in the very good category, and graphics of 80.00 percent in good category. Based on the results, media validators gave an overall score of 82.35 percent, determining the media to be in good category. The results for the second stage of media validation can be seen in Table 11.

Table 11. Results from media validation, Stage II

No	Aspect	Average score (%)	Category
1.	Media presentation	97.14	Very Good
2.	Graphics	86.00	Very Good
	Total	90.58	Very Good

Table 11 show the results of second validity test of media by the media validators, who gave the media presentation 97.14 percent in the very good category, and graphics of 86.00 percent in very good category. Based on the results, media validators gave an overall score of 90.58 percent, determining the media to be in very good category.

Therefore, the overall score according to media validators in stage I is 82.35 percent in the good category and increases to 90.58 percent in the very good category in stage II. The feasibility of the media according to the media validators in stage I and stage II can be seen in Fig. 3.

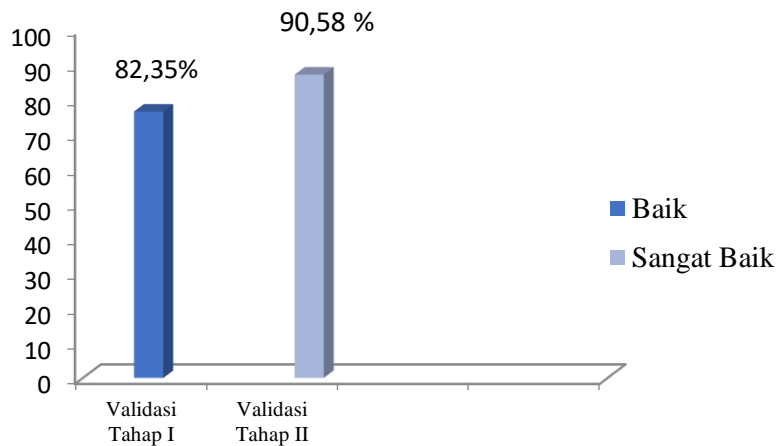


Fig. 2. Bar Chart of Media Validators Score

Feasibility of Genially media according to validators

The overall results of feasibility validation according to content material validators and media validators can be seen in Table 12. Table 12 shows that the feasibility of Genially media is in very good category with a score of 94.00 percent.

Table 12. Percentage Feasibility According to Validators

where:	%	Category
Content material validator	98.46	Very Good
Media validator	90.58	Very Good
Average score (%)	94.52	Very Good

Students Feedback Result

Students feedback was carried out to assess the acceptance rate of users towards the media in terms of guidance, content or material, design and features, media, as well as pedagogical impact. The result was used to gauge students' opinions on the use of Genially media in Food Technology course. As can be seen

in Table 13, the students feedback on the Genially media in Food Technology course have a score of 4.94 out of 5, which is in very high category.

Table 13. Results of Students' Feedback on Genially Media

No	Media Aspect	Mean Score	Acceptance result
1	Guidance and information	4.53	Very High
2	Multimedia content material	4.67	Very High
3	Design & features	4.63	Very High
4	Pedagogical impact	4.65	Very High
	Total score	148.4	Very High
	Mean Score	4.94	Very High

Discussion

The Genially media development was carried out using the Research and Development model. In this study, the media was developed through 4 stages namely 1) Analysis, 2) Design, 3) Development, 4) *Evaluation*. The media was developed for Food Technology course in Culinary Arts Education Study Program of State University of Medan. The development was carried out using application. It is developed in several stages to create a feasible learning media.

The product was validated by subject matter experts and media experts. The content material validation and media validation were carried out separately: (1) Feasibility of content material and (2) Feasibility of media. The series of process was carried out to collect data which forms the basis for revision to create a feasible and useful media for its users. The feasibility of material in stage I based on content material validator shows that it needed revision. Revision was carried out before stage II of content material validation was carried out.

The content material validation results show that the media is in very good category. Feasibility of content material in stage I is 81.53 percent which is in good category, whereas in stage II it is 98.46 percent which is in very good category.

The feasibility of media in stage I based on media validators shows that it needed revision. Revision was carried out before stage II of media validation was carried out. The media validation results show that the media is in very good category. Feasibility of media in stage I is 82.35 percent which is in good category, whereas in stage II it is 90.58 percent which is in very good category.

Based on the results, subject matter experts gave a score of 98.46 percent in the very good category and media experts gave a score of 90.58 percent in the very good category. Overall, the feasibility of the Genially learning media according to content material and media validators is in very good category with an average score of 94 percent. This is in line with Rahayu et al. (2023) who shows that using Genially media can increase teachers' understanding of technology and also to apply it effectively in learning process. The positive impact can be seen in the quality of learning process in SMK Islam Baku, where it becomes more engaging, interactive, and fruitful after using Genially media.

Another study from Rinjani (2024) shows that students of semester 5 PBSI responded well towards Genially learning media. Majority of the respondents thought that technology-based learning media such as Genially are effective in increasing students' learning motivation. A learning media's success is determined from the attractiveness, usefulness, and ease of access and use. Genially is considered as an effective and engaging learning media by 5th semester students in PBSI The positive feedback can form the basis of further development of technology-based education in the future.

In Putra & Afrina (2023) the Genially media is in good category according to media experts validation, and in very good category according to subject matter experts and learning experts. As such, Genially-based interactive learning multimedia is feasible to use. The response of students and teachers who used it also show that the interactive learning media is feasible to use.

Another research by Miranda & Wuriyani (2024), shows that the product developed using Genially for grade 10 in SMA Swasta Budi Satrya Perbaungan is in very good category according to subject matter experts and media experts. Therefore the learning material is feasible to use in learning process.

Febriani & Casnan (2024) shows that there is a significant difference on students' learning motivation before and after the administration of snakes and ladders learning media created using Genially. Similarly, Wadud & Lailiyah (2024) shows that there is a significant difference on students' learning motivation and learning outcome after the administration of snakes and ladders created using Genially in mathematics subject in grade 4 of MI Hidayatussibyan Lamongan.

Saputri et al. (2024) shows that gamification using Genially provides positive impact to learning motivation in history subject. Gamification in education enables students to learn in a more interactive and fun manner, which in turn increases their interest and learning motivation in that subject. The integration of technology such as Genially shows that innovative approach helps in increasing the effectiveness of learning process. The results show that media which uses gamification can be an effective strategy to increase students' learning motivation, especially in history subject.

The results of this study is in line with Herdianti et al. (2024) in which the results of teachers and students needs analysis indicates that there is a need for Genially-based digital snakes and ladders learning media for Social Studies subject. This can be further developed to create digital snakes and ladder to increase students' participation and to create an enjoyable learning media for Grade 4 of primary school. The results of Firduansyah (2023) shows that: 1) the quality of Genially-based snakes and ladder according to validity category is in valid category, 2) the quality based on practicality is in practical category, and 3) the results of effectiveness test is in effective category. Therefore, the developed learning snakes and ladder media based on Genially in mathematics subject for grade 4 of SD Negeri 4 Lubuklinggau is valid, practical, and effective.

The result of this study is also supported by Putri et al. (2023) who shows their Genially-based learning media about the Hindu and Buddhist kingdoms in Indonesia. The media contains text, audio, pictures, videos, games, and animation. According to subject matter experts, the learning media is in very good category. According to media experts, it is in very good category, and according to history teachers, it is in very good category. Therefore, Genially-based history learning media is feasible to use. The developed product is effective in increasing students' learning motivation. This means that the product contributes to the increase of education quality and students' learning outcomes. Finally, Romualdi et al. (2023) shows that the Genially-based interactive learning media developed by their team about national movement organizations is in very feasible to use as an interactive media according to validation by subject matter experts, media experts, and teachers.

Conclusion

Based on the results, it can be concluded that:

- Validation score by content material validator is 98.46 percent which is in very good category, and by media validator is 90.58 percent which is in very good category. Overall feasibility of the Genially media is in very good category with an average score of 94 percent. Therefore, the web-based interactive media using Genially can be distributed and implemented in Food Technology course in Culinary Arts Education Study Program.
- The students feedback on the Genially media in Food Technology course have a score of 4.94 out of 5, which is in very high category.

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